

AMENDMENTS TO THE CLAIMS

1-57. (Canceled).

58. (Currently amended) A method of diagnosing human mammary carcinoma in a patient comprising:

detecting amplification of a MAC117 gene wherein the MAC117 gene contains a nucleotide sequence encoding the amino acids encoded by the following nucleotides sequence, represented by SEQ ID NO:2:

```
gtctacatgggtgctcccattccagggatgagctacctggaggatgtcggtcgacacagggacttggccgt  
cggaacgtgctggcaagagttccaaaccatgtcaaaattacagacttcgggtggctggacttggatggca  
gacagagtaccatgcagatggggcaaggtaggtgaaggaccaaggaggcagaggaggctgggtggagttgg  
ctagccatgggagaactctgagtggccacccatcccaacacacagttggaggacttcctctggccctccaggt  
gcccataactggatggcgctggactccattctccggcggttcacccaccagagtatgttgagttatgg  
gtgatgggggtgttggaggggtggatggccatgg,
```

in mammary tissue from said patient by hybridizing a nucleic acid derived from mammary tissue of said patient with a nucleic acid probe of the MAC117 gene, the amplification of said MAC117 gene relative to normal human mammary tissue indicating the presence of human mammary carcinoma in said patient, wherein the nucleic acid derived from the mammary tissue of said patient is DNA or mRNA.

59 (Currently amended) A method of identifying mammary carcinomas that show amplification of a MAC117 gene comprising:

detecting amplification of a MAC117 gene relative to normal human mammary tissue, wherein the MAC117 gene contains a nucleotide sequence encoding the amino acids encoded by the following nucleotides sequence, represented by SEQ ID NO:2:

```
gtctacatgggtgctcccattccagggatgagctacctggaggatgtcggtcgacacagggacttggccgt  
cggaacgtgctggcaagagttccaaaccatgtcaaaattacagacttcgggtggctggacttggatggca  
gacagagtaccatgcagatggggcaaggtaggtgaaggaccaaggaggcagaggaggctgggtggagttgg  
ctagccatgggagaactctgagtggccacccatcccaacacacagttggaggacttcctctggccctccaggt  
gcccataactggatggcgctggactccattctccggcggttcacccaccagagtatgttgagttatgg  
gtgatgggggtgttggaggggtggatggccatgg,
```

in mammary tissue from a patient diagnosed with cancer, by reacting mammary tissue from a the patient diagnosed with cancer with antibodies having specific binding affinity for at least a portion of the MAC117 protein product, and

identifying those cancers from patients whose mammary tissue shows amplification of said MAC117 gene relative to normal human mammary tissue.

60. (Canceled).

61-65. (Not entered).

66. (Canceled).

67. (Currently amended) A method of detecting amplification of a MAC117 gene in mammary tissue, the method comprising:

hybridizing a nucleic acid from the mammary tissue with a nucleic acid probe of the MAC117 gene, wherein the MAC117 gene contains a nucleotide sequence encoding the amino acids encoded by the following nucleotides sequence, represented by SEQ ID NO:2:

```
gtctacatgggtgttcccattccagggatgagctacctggaggatgtcggtcgacacagggacttggccct  
cggaacgtgttgtcaagagtcccaaccatgtcaaaattacagacttcggctggctggacattgacga  
gacagagtaccatgcagatggggcaaggtaggtgaaggaccaaggaggcagaggaggctgggtggagtgggt  
ctagccatgggagaactctgagtggccaccccccacaacacacagttggaggacttcctctgcctccaggt  
gcccatcaagtggatggcgctggagttccattctccggcgggtcaccaccagagtgtgtggagttatgggt  
gtgatgggggtgttggaggggtgggtgaggagccatgg
```

and wherein the nucleic acid from mammary tissue is DNA or mRNA, and

comparing the copy number of the MAC117 gene in the mammary tissue to the copy number of normal human mammary tissue, an increase in copy number relative to normal human mammary tissue indicating amplification of the MAC117 gene.

68. (Currently amended) A method of diagnosing human mammary carcinoma in a patient comprising:

(a) detecting increased expression of a MAC117 gene, wherein the MAC117 gene contains a nucleotide sequence encoding the amino acids encoded by the following nucleotides sequence, represented by SEQ ID NO:2:

```
gtctacatgggtgttcccattccagggatgagctacctggaggatgtcggtcgacacagggacttggccct  
cggaacgtgttgtcaagagtcccaaccatgtcaaaattacagacttcggctggctggacattgacga  
gacagagtaccatgcagatggggcaaggtaggtgaaggaccaaggaggcagaggaggctgggtggagtgggt
```

ctagcccatgggagaactctgagtggccaccccccacaacacacacagttggaggacttcccttcgcctccaggt
gcccatcaagtggatggcgctggagttccattctccgcggcggttacccaccagagtgtgtggagttatggtgt
gtgatgggggtgtggaggggtgggtgaggagccatgg,

in mammary tissue from said patient by hybridizing an RNA derived from mammary tissue of said patient with a nucleic acid probe of the MAC117 gene, the increased expression of said MAC117 gene relative to normal human mammary tissue indicating the presence of human mammary cancer in said patient; or

(b) detecting increased expression of the protein product of the MAC117 gene, wherein the MAC117 gene contains a nucleotide sequence encoding the amino acids encoded by the following nucleotides sequence, represented by SEQ ID NO:2:

gtctacatgggtgttccattccagggatgagctacctggaggatgtcggtcgtaacacagggacttggccgt
cggaacgtgctggatcaagagttccaaaccatgtcaaaattacagacttcggctggctggacattgacga
gacagagttaccatgcagatggggcaaggtaggtgaaggaccaaggaggcagaggaggctgggtggagtggtgt
ctagcccatgggagaactctgagtggccaccccccacaacacacagttggaggacttcccttcgcctccaggt
gcccatcaagtggatggcgctggagttccattctccgcggcggttacccaccagagtgtgtggagttatggtgt
gtgatgggggtgtggaggggtgggtgaggagccatgg,

by reacting mammary tissue of said patient with antibodies having specific binding affinity for at least a portion of the protein product, the increased expression of said protein product of said MAC117 gene indicating the presence of human mammary carcinoma in said patient.

69. (Currently amended) A method of identifying mammary cancers that show increased expression of a MAC117 gene comprising:

detecting increased expression of a MAC117 gene relative to normal human mammary tissue, wherein the MAC117 gene contains a nucleotide sequence encoding the amino acids encoded by the following nucleotides sequence, represented by SEQ ID NO:2:

gtctacatgggtgttccattccagggatgagctacctggaggatgtcggtcgtaacacagggacttggccgt
cggaacgtgctggatcaagagttccaaaccatgtcaaaattacagacttcggctggctggacattgacga
gacagagttaccatgcagatggggcaaggtaggtgaaggaccaaggaggcagaggaggctgggtggagtggtgt
ctagcccatgggagaactctgagtggccaccccccacaacacacagttggaggacttcccttcgcctccaggt
gcccatcaagtggatggcgctggagttccattctccgcggcggttacccaccagagtgtgtggagttatggtgt
gtgatgggggtgtggaggggtgggtgaggagccatgg,

in mammary tissue from a patient diagnosed with cancer by reacting mammary tissue from a patient diagnosed with cancer with antibodies having specific binding affinity for at least a portion of the MAC117 protein product, and

identifying those cancers from patients whose mammary tissue shows increased expression of said MAC117 gene relative to normal human mammary tissue.

70. (Currently amended) A method of detecting overexpression of a MAC117 gene in human mammary carcinoma, the method comprising:

(a) hybridizing MAC117 DNA or mRNA from the tissue with a nucleic acid probe of the MAC117 gene, wherein the MAC117 gene contains a nucleotide sequence encoding the amino acids encoded by the following nucleotides sequence, represented by SEQ ID NO:2:

```
gtctacatgggtgcttcccattccaggggatgagctacacctggaggatgtcggtcgatgtacacaggacttggccgtc  
cggaacgtgctggtaagagttcccaaccatgtcaaaattacagacttcggctggctcggtgtggacattgacga  
gacagagtaccatgcagatggggcaaggtaggtgaaggaccaaggaggcagaggaggctgggtggagtgggt  
ctagccatggagaactctgagtgccacccatccccacaacacacagttggaggacttccctctgcccctccaggt  
gcccattcaagtggatggcgctggagtccattctccggcggtcacccaccagagtgtgtggagttatgggt  
gtgatgggggtgtggagggtgggtgaggagccatgg
```

an increase in MAC117 DNA or mRNA relative to normal mammary tissue indicating overexpression of the MAC117 gene, or

(b) contacting the tissue with antibodies having specific binding affinity for at least a portion of the protein product of a MAC117 gene, an increase in antibody binding relative to normal mammary tissue, indicating overexpression of the MAC117 gene.